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Rhodora

JOURNAL OF THE

NEW ENGLAND BOTANICAL CLUB

Conducted and published for the Club, by

REED CLARK ROLLINS, Editor-in-Chief

ALBERT FREDERICK HILL
STUART KIMBALL HARRIS
RALPH CARLETON BEAN
RICHARD ALDEN HOWARD
CARROLL EMORY WOOD, JR.
} Associate Editors

Vol. 55 December, 1953 No. 660

CONTENTS:

Pinguicula vulgaris L. in New Hampshire. *A. R. Hodgdon and Frederic L. Steele* 349
Taxonomic Collections of Vascular Plants in the Southeastern States—Their Abundance and Relation to Production of Floras. *Wilbur H. Duncan* 353
Nomenclature of American Mountain-ash. *George Neville Jones* 358
How Many Species of Vascular Plants Grow without Cultivation in Massachusetts? *R. C. Rollins* 361
Cirsium Flodmani (Rydb.) Arth., f. albiflorum, forma nova. *Doris Löve* 362
Errata 364
Index to Volume 55 365

The New England Botanical Club, Inc.

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PINGUICULA VULGARIS L. IN NEW HAMPSHIRE

A. R. Hodgdon and Frederic L. Steele

Butterwort is known from two stations in New Hampshire. The junior author of this paper, as a case in point, collected it on Cannon Mountain in Franconia on May 30, 1948. An earlier record from this same place is the specimen in the New England Botanical Club Herbarium, collected by G. Ledyard Stebbins, on May 25, 1929, bearing the collection number 551. It occurs there in a limited area on wet ledges at the head of the talus slope. However, of perhaps greater contemporary interest because of the historic associations and the involved series of events and personalities leading to its rediscovery, is the Mt. Willard Station. In the Herbarium of the University of New Hampshire is a solitary, but well preserved, specimen of Butterwort from New Hampshire collected by C. H. Hitchcock, at "Hitchcock's Notch, White Mountains about 1875". Knowing also of a collection of Pinguicula from "Butterwort Flume, Mt. Willard" by Edwin Faxon in the Herbarium of the New England Botanical Club, the authors ventured to prepare a brief article on the subject for Rhodora. This was forwarded to Dr. S. K. Harris, who immediately called attention to Sweetser's comments on Hitchcock Flume and brief mention of Butterwort Flume in his "White Mountains" ed. 11, 1891. p. 152. However, Dr. Harris, thinking it possible with proper assistance to shed more light on the subject, talked with Professor A. S. Pease, who promptly recalled an article in the December, 1945 issue of Appalachia entitled "Mt. Willard Ramblings" by Henry E. Childs. A map on page 446 shows both Hitchcock and Butterwort Flumes and the text deals in part with the failure of Mr. Childs, while exploring Mt.

Willard, to locate anything suggesting Butterwort. He was, however, fairly clear in his directions to Butterwort Flume and he also pointed out that Hitchcock himself in his Geology of New Hampshire had published a map showing both flumes.

An inspection of C. H. Hitchcock's Geology of New Hampshire, Vol. II, disclosed the aforementioned map opposite p. 170 and a rather thorough discussion of Mt. Willard on pp. 165–173 with consideration of the Flumes on pp. 171–173. Hitchcock wrote as follows concerning Butterwort Flume. "The first flume is only a short distance beyond. It is not perceptible from the top of the cliff. Its course is determined by a trap dyke dipping 65° S, 10° W, about 5 feet wide. For about 200 feet the excavation into the mountain may average a depth of twenty feet and the inclination of the floor is too steep to allow one to descend or ascend in it . . . In this flume, I found, growing rather sparingly, a beautiful flower, the *Pinguicula vulgaris* or Butterwort. It is said to range from "western New York to Lake Superior and northward." None of the botanists who have explored the White Mountains for plants speak of it; so it must have escaped their notice. In memory of this plant, therefore, I will call the chasm the "Butterwort Flume" to distinguish it from the one farther north."

Considering themselves well fortified with the above information the authors in company with Alexander Lincoln, Jr., on June 21, 1953, proceeded rather directly and with little of adventure to the base of Butterwort Flume where the first Pinguicula was encountered. From this point on, however, the senior author, who is not adapted to rock climbing, had to be assisted. This point is mentioned not to entice rock climbers to the place, for the flume would present no real challenge to them, but to discourage the uninitiated who would run severe risks, particularly if the rocks were wet. In the nearly 72 years since the last reported visit by a botanist, that of Faxon in 1881, the Pinguicula seems to have held its own. It was in full flower at the time of our visit.

The junior author, becoming separated from the other two members of the party, negotiated the other longer chasm, Hitchcock Flume, on the same face of Mt. Willard, but farther to the north and higher up. This is a deep narrow flume with vertical

walls, too dark for much vegetation to grow. No Butterwort was seen, which makes it entirely likely that the University of New Hampshire specimen was collected also from Butterwort Flume and not from the one now called "Hitchcock Flume."

In the Jesup Herbarium at Dartmouth, there is a specimen collected at "Butterworth Flume, Mt. Willard, New Hampshire, 1875" by Hitchcock. According to A. S. Pease, in a recent communication to the authors, in the Amherst College Herbarium (now deposited at the University of Massachusetts), there is a sheet with the following inscription, "Pinguicula vulgaris L. Mt. Willard, New Hampshire, July 1, 1875, Hitchcock's Ravine, a new discovery—Professor Charles H. Hitchcock." Presumably "Hitchock's Notch" and "Hitchcock's Ravine" on labels refer to Butterwort Flume and not to the true Hitchcock Flume.

In the Gray Herbarium, is a specimen of E. and C. E. Faxon from Butterwort Flume (the same date and probably the same collection as the New England Botanical Club specimen of E. Faxon) and one from the collection made by Agassiz, with the none too helpful information on the label "White Mountains of New Hampshire."

On July 26, 1953, Mr. Theodore W. Wells, who teaches at Milton Academy, ascended Butterwort Flume with a companion. His comments, in part, in a letter written to the senior author are worth recording here, "The lower two-thirds of the Mt. Willard crevice are filled with stream detritus and, therefore, present no problem to the climber. The final third, however, is steeper and contains nothing but solid traprock, made more treacherous by moisture and plant encrustations. At the base of this passage—Butterwort Flume proper—*Paronychia argyrocoma* var. *albimontana* may be found on the north side, c. el. 2200 feet. In the flume one at once observes that the trap dike dips about 75° S, such, that the south wall is overhanging and resultingly darker and damper. Even from the base of the flume the conspicuously yellow-green leaves of Pinguicula are seen on the south wall and in the bed of the stream. The plant increases in frequency up the hundred or so feet of the flume, which terminates abruptly in a cave with a prominent caprock (c. el 2300 feet). The presence of Pinguicula, a calciphile, is

probably explained in part by the fact that the chemical erosion of the calcic feldspars and ferromagnesian minerals in the basalt by water and carbon dioxide yields some quantity of calcium carbonate."

In summary the following collections of Butterwort have been made at Mt. Willard. 1. Hitchcock, 1875 (specimens at the University of Massachusetts; University of New Hampshire and Dartmouth College); 2. E. and C. E. Faxon (specimens at the Gray Herbarium, and the New England Botanical Club Herbarium, the latter with only the name of E. Faxon on the label); 3. Hodgdon, Steele and Lincoln, June 21, 1953; 4. Theodore Wells, July 26, 1953.

The chronological picture would now be clear except for the Agassiz specimen, in the Gray Herbarium. As Professor Pease has pointed out to us, Louis Agassiz died in 1873, two years before Hitchcock's classical visit to Butterwort Flume. Was he aware of the Mt. Willard Pinguicula before Hitchcock's time, or did Agassiz discover the station of Pinguicula at Cannon Mountain which is after all more accessible than that in Crawford Notch?

In our opinion the statement of range of *Pinguicula vulgaris* on p. 1308, in the new Gray's Manual is misleading in that it seems to indicate that this plant is not found in the state of New Hampshire. We suggest that the range given on page 1308 in the "Manual" be amended following the words "and locally to" to read "n. New Hampshire" following which presumably the statement of range would continue as there given.—University of New Hampshire, Durham, New Hampshire and St. Mary's-in-the-Mountains, Littleton, New Hampshire.

TAXONOMIC COLLECTIONS OF VASCULAR PLANTS IN THE SOUTHEASTERN STATES—THEIR ABUNDANCE AND RELATION TO PRODUCTION OF FLORAS

Wilbur H. Duncan

In planning for extensive collecting in the Southeastern States during 1953, much attention was given to the matter of where collections should be made. The location of poorly collected areas was thought to be of considerable importance. Published records of distribution were examined for several species but no definite over-all pattern was discernible. Finally a composite map of dots was prepared to indicate citations by county of specimens from the Southeastern States, including Arkansas and Louisiana, in taxonomic papers covering 62 species in five genera. The genera were *Ruellia* (Fernald, 1945), *Selaginella* (Clausen, 1946) *Liatris* (Gaiser, 1946), *Tephrosia* (Wood, 1949), and *Sabatia* (Wilbur, 1952). Distribution data for *Sabatia* were provided by Dr. Robert L. Wilbur from his unpublished manuscript and are gratefully acknowledged.

Only one dot was placed in a given county for a given species. Several collections of one species from each of such counties as Dade, Duval, and Hillsborough in Florida are represented, therefore, by one dot in each county.

Graphic analysis of the final dot map (Figure 1) indicates clearly a number of relatively poorly collected areas [e.g.; (1) most of Mississippi, Louisiana, and Tennessee; (2) large areas in Arkansas, Alabama, Georgia, and South Carolina; and (3) smaller areas in North Carolina]. Florida appears relatively well collected throughout.

One should keep in mind that the five genera are largely southeastern in distribution and that the number of dots in a given area probably should not be compared absolutely with that of certain other distant areas, e.g., western Tennessee and northern Florida.

In making an analysis of the dot map, one should also take due consideration of recent intensive collecting in certain areas, (e.g., A. J. Sharp and R. E. Shanks in Tennessee; William Fox, R. K. Godfrey, and others in North Carolina; Robert Thorne and

myself in Georgia). These collections were partly available or not at all to Gaiser, Fernald, Clausen, and Wood.

A number of counties with relative large collections, however, are adjacent to counties, or larger areas, with little or no recorded collections. Examples of such counties are Rapides and Natch-

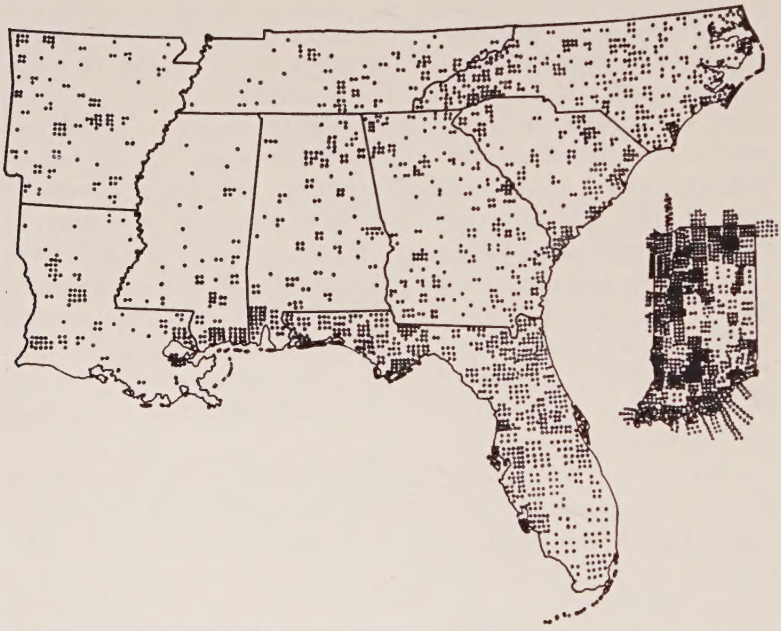

Figure 1. Map of nine southeastern states and Indiana showing by dots the number of species (out of 62) reported for each county.

itoches in Louisiana, Cullman and Lee in Alabama, Richmond and Floyd in Georgia, Davison and Knox in Tennessee, and Darlington and Anderson in South Carolina. Such concentrations are frequently correlated with locations of educational insititutions and/or with localities where one or a few persons made concentrated collections. Analyses of such relationships would undoubtedly be interesting, but they are not, however, within the scope of this paper. The abrupt shifts in numbers of collections recorded from given counties to adjacent counties in my opinion usually reflect existing differences in the amount of collecting of all species of vascular plants.

Graphic analysis of the data (Figure 1) readily demonstrates that Florida is the best collected state. The relative standing of the other states is not so clearly evident. The dots for each state, therefore, were totaled and the average number per county calculated. It is assumed that if all other factors were equal, the smaller the county the fewer the number of species collected in it. To compensate for this an "area factor" was computed by dividing the average area of the counties for each state into the average area of the counties in Florida whose counties had the greatest average area. This "area factor" for each state was then multiplied by the average number of collections per county for that state to give the "corrected average number of collections" per county which we shall use in establishing the position for each state. The data are presented in Table 1, Florida presenting the best record and Mississippi the lowest. The differences between the "corrected average number of collections" for Florida and each of the other states are probably significant. The difference between the values for Mississippi and Louisiana, for example, probably is not.

At this point in my analysis of the data a question that has frequently come to my mind, and undoubtedly to other taxonomists, again became prominent. Are there sufficient numbers of specimens upon which to base work on good modern floras of the various states or even of the whole Southeastern States? One way to analyze this question is to compare the present data for the Southeastern States with similar data from some area having a good flora. It is conceded by many that Deam's (1940) Flora of Indiana is probably the best state flora produced. The five genera included in the present analysis are not, however, well represented in Indiana, and could not, therefore, be used in making the comparison desired between Indiana and the Southeastern States. It was decided to select 62 species from Deam's "Flora" and make a comparison with them.

The "Flora" was opened near the middle and the first large genus that was encountered, *Desmodium*, was chosen. Certain other genera that followed were also included. No attention was paid to the maps until after a total of 62 species was listed for compilation. The final list included all species in *Desmodium* (16), *Lespedeza* (11), *Lathyrus* (4), *Apios* (1), *Oxalis* (6), *Polygala*

TABLE I

Average Number of Collections per County Cited in Monographs of 5 Genera, Including 62 Species, for Each of 9 States, Data for Indiana Being Based on Another 62 Species. The Area Factor, a Value Compensating for Relative Average Size of Counties; Corrected Average Number of Collections; and Total Number of Species Reported Are Also Given.

State	No. of Counties	Average Number Collections per Co.	Area Factor	Corrected Average Number Collections	Total Number Species Reported
Florida	67	9.3	1.00	9.3	41
N. Carolina	100	3.5	1.66	5.8	30
S. Carolina	46	3.5	1.30	4.6	32
Georgia	159	1.6	2.36	3.8	41
Alabama	67	2.3	1.14	2.6	35
Arkansas	75	1.7	1.23	2.1	16
Louisiana	64	1.7	1.15	2.0	31
Tennessee	95	1.0	1.97	2.0	17
Mississippi	82	1.1	1.50	1.7	23
Indiana	92	12.6	1.22	28.0	62

(8), and *Euphorbia* (16). A composite map for Indiana was prepared for the 62 species (Figure 1). Dots were so abundant in many counties that it was necessary to place dots adjacent to the counties and outside of the state boundaries. It appears that the average number of specimens per species upon which Deam's Flora was based much exceeds that of any Southeastern State. The "corrected average number of collections" per county for Indiana is 28.0 over 3 times that for Florida, 7 times that for Georgia, and 16 times that for Mississippi.

In comparing the amount of material from Indiana with that from any southeastern state, the number of species (out of the 62) that might be expected to occur in each state should be considered. This number is undoubtedly greater in every instance than the number of species reported per state (Table 1). Even assuming that no more than 16 species will be reported for Arkansas, which is the state with lowest number, a comparison of the ratios of 16/2.1 for Arkansas and 62/28 for Indiana indicates that there are only one/third as many specimens available for study in Arkansas as compared to Indiana.

These and other data have convinced me that more collecting must be done in most parts of the Southeast before new Floras of the area should be attempted. Perhaps others will have a different opinion. There probably is little doubt, however, that many areas in the Southeast are very poorly represented by collections. It is urged, therefore, that monographers and others studying plant material of species whose ranges include the Southeast be prudent by obtaining for study the maximum number of specimens from this area. Adequate specimens from this area are not now available in the major herbaria of the United States. Recent intensive collections, now included in herbaria at several of the southeastern educational institutions, may provide a good beginning towards eliminating the problem of too few specimens for study. The effect of these recent collections on the dot map is evident to me in the composite map not shown for the species of *Sabatia*. A majority of the dots (Figure 1) in Southwestern Georgia represent collections of *Sabatia* by Robert Thorne. Thorne's collections from Southwestern Georgia are absent or mostly so from the other species included in the map. No matter how few specimens a given

institution in the southeast may be able to provide in response to a request for a loan, it is a duty to send them for study upon request, if for no other reason than the fact that one specimen from this area means much more, perhaps 5 to 15 times as much, as would a specimen, e.g. from Indiana, New York, or Massachusetts.—department of botany, university of georgia, athens, georgia.

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Deam, C. C. 1940. Flora of Indiana 1236 p. Indiana Department of Conservation.

Fernald, M. L. 1945. *Ruellia* in the Eastern United States. Rhodora **47**: 1–38, 47–63, 69–90.

Gaiser, L. O. 1946. The genus *Liatris*. Rhodora **48**: 165–183, 216–263, 273–326, 331–382, 393–412.

Wilbur, Robert L. 1952. A revision of the North American genus *Sabatia* (Gentianaceae) 287 p. unpublished thesis, University of Michigan.

Wood, Carroll E., Jr. 1949. The American barbistyled species of *Tephrosia* (Leguminosae) Rhodora **51**: 193–231, 233–302, 305–364, 370–384.

Nomenclature of American Mountain-ash.—There are two species of native mountain-ash occurring spontaneously in eastern United States. The one with acuminate leaflets and small fruits was first described from Pennsylvania by Marshall in 1785 as *Sorbus americana*. The other species, with acute leaflets and larger fruits, was first described as *S. aucuparia* var. β by Michaux in 1803. Pursh in 1814 treated it as a species, also named *S. americana*. This was transferred to Pyrus, as *P. americana*, by De Candolle in 1825. In 1902 it was treated by Sargent as *P. americana* var. *decora*, and in 1906 was raised to specific rank as *Sorbus decora* (Sarg.) Schneider. Although it has been clearly pointed out[1] that *Pyrus americana* DC. does not refer to the same species as *Sorbus americana* Marsh., yet followers of "Gray's Manual of Botany" continue to refer to the American Mountain-ash as *Pyrus americana* (Marsh.) DC.

It is not the purpose in this short article to urge the retention of Sorbus for the mountain-ashes, Pyrus for pears, or Malus for apples (see L. H. Bailey in Gentes Herbarum **8**: 40–43, 1949), because the basic morphological facts (see Decaisne in Nouv.

[1] Journ. Arnold Arb. **20**: 11–16 (1939).

Archiv. Mus. Hist. Nat. Paris **10:** 113–192, 6 plates, 1874) as well as prevailing botanical and horticultural usage for the past two centuries render such advocacy unnecessary. The prime purpose here is to point out to those who wish to treat the American mountain-ash as a pear-tree that there appears to be no choice but to adopt the binomial *P. microcarpa* (Pursh) DC. (1825). The earlier name for this species, *Sorbus micrantha* Dum.-Cours. is unavailable under Pyrus because of the existence of *P. micrantha* Franch. & Sav. (1879) for a species of Japan.

In view of the fact that the nomenclatural history of these two species is somewhat involved and is in need of additional clarification, it may be desirable to repeat some of the more important evidence. As previously noted, *Sorbus americana* was first described by Marshall in 1785. While Marshall's description is not as definite as may be desired, there is scarcely any doubt as to the identity of his plant as it is the only native species of Sorbus occurring in Pennsylvania, where Marshall had his garden, and from where, presumably, he obtained his specimens. In 1803, Michaux (or his editor), overlooking or ignoring Marshall's work, characterized the two native northeastern American mountain-ashes as varieties α and β of *S. aucuparia* L. The variety α was said to have "foliis acuminatis," and habitat "in excelsis montibus Carolinae." This is obviously *S. americana* Marsh. The var. β was characterized by "foliis sensim acutis," and the habitat "in Canada et circa lacum Ontario." Plainly, this is the northern shrub we now call *S. decora.* In 1809 Willdenow published as a newly named species *S. americana,* citing "*Sorbus aucuparia* Mich." as a synonym and giving the habitat "in montibus excelsis Carolinae," evidently quoting from Michaux. In doing this he possibly was unaware of the earlier publication of *S. americana* Marsh., or at any rate he did not refer to it. The var. α and var. β of Michaux were evidently regarded as identical.

Pursh in 1814 was the first to recognize the fact that there are two separate species native to northeastern North America, each distinct from the European *S. aucuparia* L. The northern plant with acute leaflets and large fruits Pursh called *S. americana,* citing Willd. Enum. Plant. 520, from where he copied the description. To this description, however, he made the important

addition "foliolis acutis," citing *S. aucuparia* var. β Michx. as a synonym, and giving the habitat "In Canada and on some of the northern mountains." All this refers unmistakably to what we now call *S. decora* (Sarg.) Schneid., and confirms the fact that *S. americana* Pursh is not *S. americana* Marsh. It is interesting to note that Pursh appears to have copied from Willdenow the statement "Berries purple, not scarlet as in the European species." Pursh designates the other native eastern North American tree (the one with acuminate leaflets, small fruits, and a more southerly range), by the new name *S. microcarpa*. He cites *S. aucuparia* α Michx. as a synonym, gives the habitat and range "On the peaks of high mountains: New Jersey to Carolina," and adds the comment "This species is very distinct from the Canadian *Sorbus*." i. e., his *americana*, which, as previously pointed out, is *S. decora* (Sarg.) Schneid., but not *S. americana* Marsh. In 1825 A. P. De Candolle transferred these species to *Pyrus*, but the name *Pyrus americana* DC., designating the northern shrub with acute leaflets and large fruits, is based upon *Sorbus americana* Pursh, and therefore is not synonymous with *S. americana* Marsh. It belongs as a synonym of *S. decora*.

The principal bibliography of these two species is as follows:

SORBUS AMERICANA Marsh. Arbust. Am. 145 (1785); Willd. Enum. Pl. **1:** 520 (1809), pro parte. *S. aucuparia* var. α Michx. Fl. Bor. Am. **1:** 290 (1803). *S. micrantha* Dum.-Cours. Bot. Cult., ed. 2, **5:** 464 (1811). *S. microcarpa* Pursh, Fl. Am. Sept. **1:** 341 (1814). *Pyrus microcarpa* (Pursh) DC. Prodr. **2:** 636 (1825). *Pyrus americana* sensu Watson & Coulter in Gray, Man. Bot., ed. 6, 164 (1889), Robinson & Fernald in op. cit., ed. 7, 459 (1908), Fernald in op. cit., ed. 8, 760 (1950). Non (Pursh) DC. (1825).

SORBUS DECORA (Sarg.) Schneider in Bull. Herb. Boiss. II. **6:** 313 (1906). *S. aucuparia* var. β Michx., loc. cit., *S. americana* Willd., loc. cit., pro parte; Pursh, loc. cit. *Pyrus americana* (Pursh) DC., loc. cit. *P. sambucifolia* Watson & Coulter, loc. cit. Non Cham. & Schlecht. (1827). *P. americana* var. *decora* Sarg. Silva N. Am. **14:** 101 (1902). *Sorbus americana* var. *decora* Sarg. Man. Trees N. Am. 357 (1905). *Sorbus scopulina* sensu Hough, Handb. Trees U. S. & Canada 241 (1907), Britton in Britton & Brown, Illustr. Fl. N. States, ed. 2, **2:** 287 (1913). Non Greene (1900). *Pyrus sitchensis* sensu Robinson & Fernald in Gray, Man. Bot., ed. 7, 459 (1908). Non Piper (1901). *Pyrus dumosa* sensu Fernald in Rhodora **23:** 266 (1921). Non *S. dumosa* Greene (1900).—George Neville Jones, University of Illinois.

How Many Species of Vascular Plants Grow without Cultivation in Massachusetts?—Such a question is not easy to answer. The principal reason is that, in all its long history, the State of Massachusetts has never had a book produced to reveal to the interested person the composition of the flora covered within its exact boundaries.

In order to arrive at an estimate of the number of species present, I have used several sources each covering the flora of only a part of the State. The results of my tabulations are here given so that interested persons will not have to repeat the chore. The primary source is the series of "Reports on the Flora of the Boston District" begun in Rhodora in 1907 and continued until 1924. These "Reports" were prepared by the Committee on Local Flora of the New England Botanical Club. The composition of the Committee changed some over the years but two members, C. H. Knowlton and Walter Deane, were conspicuous in its activities throughout, and for most of the period of the "Reports" they alone made up the Committee.

The "Boston District" was liberally interpreted and, for the purposes of the "Reports," was considered to include eastern Massachusetts excluding Cape Cod. The area covered extended east from a north-south line along the eastern edge of Worcester County from the New Hampshire line to the Rhode Island boundary at Bellingham and north of a line from there east to the coast at Duxbury. In this area are found 2098 species of which 786 are introduced from outside the area, most of them from the old World.

The Flora of Berkshire County, Massachusetts, by Ralph Hoffman[1] was used to determine the species that occur in western Massachusetts not found in the flora of the "Boston District." There are 300 such species. The Ferns and Flowering Plants of Nantucket, by Eugene P. Bicknell, appeared in a series in the Bulletin of the Torrey Botanical Club beginning in 1908 and ending in 1917. These reports were checked against the "Flora of Berkshire County" and the "Flora of the Boston District" to determine how many species from Nantucket did not occur in the other two areas. There are 83 additional species. The Flora of the Elizabeth Islands, by John M.

[1] Proc. Bost. Soc. Nat. Hist. **36**: 173–382. 1922.

Fogg, Jr.[2] was checked against the other three works but no species were found that were not included in at least one of them. A further check, using a list from Cape Cod, would have been advisable but a flora for that area comparable to the others could not be found.

From the above procedure, an estimate of 2481 species of plants growing within the boundaries of Massachusetts was arrived at. In a series of cross checks, the introduced plants, when they did occur in western Massachusetts or on Nantucket, also appeared in the "Flora," so that the figure of 786 obtained from the "Flora of the Boston District" may be safely used to estimate the number of indigenous species within the State. There are approximately 1675 indigenous species. In other words, about 70% of the species now in our flora are native and about 30% are introduced from elsewhere.—R. C. Rollins.

Cirsium Flodmani (Rydb.) Arth., f. **albiflorum**, forma nova.—In July 1952, when the author was collecting on the dry prairie about 10 miles WSW of Langruth, Manitoba, her attention was caught by a stand of snowy white thistles. It proved to be a white-flowered form of *Cirsium Flodmani* (Rydb.) Arth., which has not yet been named in botanical literature. No normal purple-flowered nor any intermediate-colored thistles were found in the vicinity, but aside from the white flowers the plants were typical for the species (cf. Ownbey, 1952).

Cirsium Flodmani (Rydb.) Arth. f. **albiflorum** f. nova: A typo differt in floribus albis. Specimen typicum in Herbario Univ. Manitobensis (Á. & D. Löve, no. 5672, 1952) conservatum.

The distribution of the form is not thoroughly known. Inside Manitoba it had previously been collected by Dr. H. A. Senn (coll. no. 6185) 6 miles west of Letellier in Manitoba (Frankton in lit.). There is also a collection from Tyvan, Saskatchewan (Coupland & Hubbard, 29-7-45), which has been reported as *C. plattense* by Tisdale & Budd (1948), but has later been revised to *C. Flodmani* at Ottawa (Frankton, in lit.; cf. also Budd, 1953). In the herbarium of the University of Wisconsin at Madison another so-called *C. plattense* (coll. Dr. H. Hapeman, June 10,

[2] Rhodora, 1930. [Contrib. Gray Herb. XCI].

1925 at Minden, Nebraska) has been corrected to *C. undulatum* (Nutt.) Spring. var. *megacephalum* (Gray) Fern. by L. H. Shinners in 1942, but the author is inclined to believe that also this plant belongs to the *albiflorum* form of *C. Flodmani*. The same herbarium also has two sheets of *C. Flodmani* from the Northwestern Collections of 1941 by J. F. Brenckle and L. H. Shinners from "two Medicine River bottoms, 10 mls. SE of Browning, Glacier Co., Montana, Aug. 7, 1941." One of these is the normal purple-flowered thistle, the other one is the white-flowered form. It is therefore assumed that the form, though rare, has a distribution similar to that of the species itself.

The locality of the Langruth specimens was very dry prairie, the leading plants of which were *Elytrigia Smithii* (Rydb.) Löve, *Bouteloua gracilis* (Hbk.) Lag., *Stipa spartea* Trin., *Muehlenbergia cuspidata* (Torr.) Rydb., *Panicum virgatum* L., *Potentilla Anserina* L., *Oxytropis splendens* Dougl., *Potentilla bipinnatifida* Dougl., *Orthocarpus luteus* Nutt., *Liatris ligulistylis* (Nels.) Schum., *Aster ericoides* L. and *Antennaria microphylla* Rydb.—Doris Löve, the herbarium, department of botany, university of manitoba, winnipeg, canada

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Tisdale, E. W. & Budd, A. C. 1948. Three recent additions to the check list of Saskatchewan plants. Canadian Field Naturalist **62**: pp. 95–96.—

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ERRATA

Page 17, line 31; for *Tectorum* read *tectorum.*
Page 52, line 35; *for* var. *read* forma.
Page 53, line 16; for *laurentianum* read *laurentiana*; for *Mackayi* read *Mackayii.*
Cover of No. 651; for *Heliauthus* read *Helianthus.*
Page 84, line 7; for *longfolia* read *longifolia.*
Page 110, line 26; *for* compliment *read* complement.
Page 124, line 42; *for* oellected *read* collected.
Page 137, line 18; *for multifolra read multiflora.*
Page 155, line 20; *for* heretofor *read* heretofore.
Page 158, line 20; *for* vestitudioribus *read* vestiturioribus.
Page 201, line 37; *for* mm. *read* cm.
Page 227, line 33; *for* AMETHYSINUM *read* AMETHYSTINUM.
Page 228, line 30; *for* papes *read* pages.
Page 249, line 13; *for* ALEXENSIS *read* ALAXENSIS; before Cov. insert (Anderss.).
Page 253, line 29; for *Kuhniineae* read *Kuhniinae.*
Page 256, line 30; for *Kuhiineae* read *Kuhniiae.*

INDEX TO VOLUME 55

New scientific names and combinations are printed in bold face type

Abbe, E. C. and Butters, F. K., A Floristic Study of Cook County, Northeastern Minnesota, 21, 63, 116, 161
Abies balsamea 41, 45, 46, 100
Abutilon theophrasti, 224
Acacia angustissima, 160
Acer pennsylvanicum 295; rubrum 173; saccharum 43, 48, 49, 59, 173; spicatum 45, 173, 224, 295; striatum 295
Achillea lanulosa 198, 199; Millefolium 198; occidentalis 199; Ptarmica 198
Acnida altissima, 224
Acorus Calamus, 136
Actaea pachypoda 156; rubra 151, 156; f. neglecta, 151
Additional Notes on Arundinaria gigantea 60
Additional Notes on Grasses of Boone County, Missouri, 289
Additiona and Extensions to the Flora of Nova Scotia, 17
Additions to the Flora of the Erie Archipelago (Ontario), 224
Agastache Foeniculum, 188
Agrimonia pubescens, 224; striata, 169
Agropyron repens 121; f. trichorrhachis, 52, 121; var. subulatum f. Vaillantianum, 52, 121; trachycaulum var. novae-angliae, 121; var. typicum, 121; triticeum, 236
Agrostis alba, 124; geminata, 125; f. exaristata, 125; scabra, 124
Alchemilla alpina, 223
Alisma Plantago-aquatica ssp. brevipes, 118; var. brevipes, 117, 118; triviale, 117
Allium mutabile, 290; oleraceum, 159; Schoenoprasum var. laurentianum, 137; var. sibiricum, 51, 53, 137; stellatum, 137; tricoccum, 243; var. **Burdickii,** 243
Allium tricoccum Ait., var. Burdickii, var. nov., 243
Alnus crispa, 42, 145; incana, 145; rugosa var. americana, 42, 43, 46, 47, 145
Alopecurus aequalis, 125; var. natans, 125
Alsine media, 11
Ambrosia psilostachya var. coronopifolia, 197, 224; trifida, 197
Amelanchier, 45; Bartramiana, 166; Bartramiana × laevis, 166; canadensis, 81, 166; humilis, 46; var. compacta, 81, 166; huronensis, 81, 165; intermedia, 166; laevis, 166; mucronata, 81, 166; sanguinea, 165; stolonifera, 166; Wiegandi, 81, 165
Amorpha and New Forms and Records from Missouri, A Hybrid, 157
Amorpha canescens, 157, 158; fruticosa, 158; **Amorpha × notha,** 158
Amphicarpa bracteata var. comosa, 224
Anacharis canadensis, 118
Anaphalis margaritacea, 43; var. intercedens, 197, 224
Andromeda glaucophylla, 41, 42, 44, 181; polifolia, 14
Andropogon Elliottii, 289; furcatus, 12; Gerardi, 12; saccharoides, 290
Androsace chamaejasme ssp. Lehmanniana, 251
Anemone canadensis, 151; narcissiflora, 248; ssp. interior, 250; nemorosa, 295; nudicaulis, 150; quinquefolia, 45; var. interior, 151; virginiana, 151
Angiosperm Pollen (Review), 203
Animadversions and other Notes on Arnica, 55
Another Coastal Plain Relict in the Missouri Ozark Region, 15
Another Color Form of Epilobium latifolium L., 268
Antennaria, 45; canadensis, 197; margaritacea, 295; microphylla, 362; monocephala, 252; munda, 197; neodioica, 197; var. attenuata, 197; petaloidea, 197; philonipha, 252; plantaginea, 308; plantaginifolia, 295
Anthoxanthum odoratum, 289
Apios, 355
Apocynum androsaemifolium, 46, 186, 295
Aquilegia canadensis, 151
Arabis arenicola var. pubescens, 161; divaricarpa, 46; var. typica,

161; divaricarpa × holboellii var. retrofracta, 162; glabra, 161; hirsuta, 161; var. pycnocarpa, 161; Holboellii var. retrofracta, 53, 82, 162; lyrata, 161; perfoliata, 161; perstellata var. perstellata, 224; pycnocarpa var. typica, 161
Aralia hispida, 177; nudicaulis, 45, 46, 177, 295; racemosa, 177
Arbutus Uva Ursi, 13
Arctagrostis latifolia, 248
Arctium minus, 200
Arctostaphylos Uva-ursi, 41, 182; var. adenotricha, 182; var. coactilis, 182
Arenaria groenlandica, 295; macrophylla, 53, 81, 147; serpyllifolia var. tenuior, 160; uliginosa, 222
Arethusa bulbosa, 83, 140
Arisaema atrorubens, 48, 135; f. atrorubens, 226; f. zebrinum, 226
Arnica, Animadversions and other Notes on, 55
Arnica attenuata, 56; chionopappa, 52, 53, 80, 200, Plate 1190; frigida var. **glandulosa,** 56; fulgens, 56; lessingii, 56, 57; louiseana, 247; ssp. frigida, 252; plantaginea, 57; porsildiorum, 56; sornborgeri, 56; var. ungavensis, 56
Aronia melanocarpa, 165
Artemisia arctica, 252; camporum, 199; canadensis, 199; caudata, 199; var. calvens, 199; longifolia, 236; norvegica, 219; pacifica, 199
Arundinaria gigantea, Additional Notes on, 60
Asarum canadense, 145, 295; var. acuminatum, 145
Asclepias incarnata var. neoscotica, 19; var. pulchra, 19; var. typica, 19
Asplenium Trichomanes, 53, 82, 99
Aster acuminatus, 295; azureus, 324; ciliolatus, 45, 196; cordifolius, 295; ericoides, 362; frondosus, 236; junciformis, 196; junciformis × puniceus, 196; lateriflorus, 196; Lindleyanus, 196; longulus, 196; macrophyllus, 45, 46, 47, 196; var. velutinus, 196; ontarionis, 224; ptarmicoides, 41, 196; pubentior, 196; puniceus, 47, 196; puniceus × simplex, 196; shortii, 156, 324; ssp. **azureus,** 324; ssp. shortii, 324; simplex, 196; umbellatus, var. pubens, 196
Aster shortii ssp. azureus (Lindl.), stat. nov., 324
Athyrium angustum, 99; f. typicum, 99; var. elatius, 99; var. rubellum, 46; Filix-femina var. Michauxii, 99; f. rubellum, 99
Atractylis flava, 308
Atriplex truncata, 236
Avena fatua, 122
Avers, C. J., Aster shortii ssp. azureus (Lindl.) stat. nov., 324

Baptisia sphaerocarpa, 160
Barbarea vulgaris, 154
Bean, R. C., Further Light on Aaron Young, Jr.'s Flora of Maine, 293; Two Unusual Plants in Essex County, Massachusetts, 348
Betula cordifolia, 45, 46, 143, 144; lutea, 48, 143, 173; nana, 295; papyracea var. minor, 295; papyrifera, 41, 45, 46, 143, 144; var. cordifolia, 143; pumila var. glandulifera, 44, 83, 144; **Betula × Rosendahlii,** 143
Bidens Beckii, 198; cernua, 198; vulgata, 224; f. puberula, 198; var. puberula, 47, 198
Blake, S. F., Erroneous Record of Diplotaxis erucoides from Western United States, 291
Blephilia hirsuta, 188
Boehmeria cylindrica, 224
Boivin, B., Additions to the Flora of the Erie Archipelago (Ontario), 224; Animadversions and other Notes on Arnica, 55; Two New Variations in Trillium, 101
Booth, W. E. and Wright, J. C., Montana Plant Distribution Records, 236
Borrichia frutescens, 57
Borrichia frutescens from Chesapeake Bay, 58
Botrychium dissectum, 156; Lunaria, 94; f. **onondagense,** 94; matricariaefolium, 83, 95; multifidum, 94; var. intermedium, 82, 94; onondagense, 94; simplex, 94; var. laxifolium, 95; virginianum, 95; var. europaeum, 95; var. intermedium, 95
Bouteloua gracilis, 362
Brasenia Schreberi, 149
Brassica arvensis, 154; Kaber var. pinnatifida, 154
Braya alpina, 110; humilis, 109, 110, 111, 112, 113, 114, 115; ssp. **arctica,** 114, 115; ssp. **ventosa,**

111, 114, 115; linearis, 110, 111, 115; purpurascens, 110
Braya in Colorado, 109
Brianthus taxiflorus, 295
Brickellia adenocarpa, 254, 257, 286, 287, 299, 300, 303, 320, 331, 335, 337, 340; var. adenocarpa, 303, 316; var. glandulipes, 264, 274, Plates 1194–1195, 303, 304, 309, 316; amplexicaulis, 259, 274, 277, Plate 1194, 281, 299, 305, 309, 315, 316, 334, 337, 338; argyrolepis, 257, 264, 269, 271, 274, Plates 1194–1195, 286, 287, 299, Plate 1196, 314, 316, 320, 331, 337; baccharidea, 331; betonicaefolia, 259, 274, 277, Plate 1194, 281, 285, 299, 305, 309, Plate 1196, 315, 316, 334, 337, 338; brachiata, 311; brachyphylla, 258, 272, 274, Plate 1194, 279, 280, 307, 316, 317, 331, 339; californica, 260, 270, 273, 274, Plates 1194–1195, 283, 284, 285, 286, 297, 298, 300, 307, Plate 1196, 315, 316, 320, 321, 330, 331, 339, 340; var. tenera, 283, 284; cardiophylla, 311; Cavanillesii, 335, cordifolia, 311; Coulteri, 256, 259, 274, Plates 1194–1195, 282, 284, 288, 299, Plate 1196, 311, 314, 315, 316, 338; cuspidata, 259, 274, Plate 1194, 280, Plate 1196, 311, 312, 314, 316, 317, 333, 334, 338; cylindracea, 307; cymulifera, 311; dentata, 258, 274, Plate 1194, 279, 280, 299, 307, Plate 1196, 312, 316, 339; desertorum, 260, 274, Plate 1195, 284, 298, 315, 316, 329, 331, 339; diffusa, 257, 258, 270, 272, 274, 277, Plates 1194–1195, 297, 299, 306, Plate 1196, 311, 316, 318, 319, 331, 332, 341; Fendleri, 331; filipes, 318, 331, 341; floribunda, 264, 274, Plate 1194, 268, 298, 304, 309, 314, 316, 321, 329, 330, 331, 339, 340; frutescens, 309, Plate 1196; glabrata, 311; glomerata, 262, 274, 276, Plates 1194, 1195, 284, 285, 286, 300, 302, 303, 304, 306, 315, 316, 328, 331, 337; glutinosa, Plate 1196, 311, 312; grandiflora, 265, 270, 272, 274, Plate 1194, 287, 299, 304, 316, 319, 320, 331, 333, 335, 338; Greenei, 264, 274, Plate 1195, 297, 298, 309, 316, 329, 331, 332, 339; hastata, 281, 311; hebecarpa, 303, 304, 337; hymenochlaena, 272, 311, 319, 335; incana, 265, 274, Plates 1194, 1195, 288, 297, 298, 308, Plate 1196, 315, 316, 329, 330, 331, 332, 338, 339; Kellermani, 280; laciniata, 260, 274, Plate 1194, 282, 283, 286, 298, 307, Plate 1196, 314, 315, 316, 317, 330, 331, 339, 340; lanata, 265, 274, Plates 1194–1195, 287, 308, 309, Plate 1196, 315, 316, 317, 333, 334, 338; var. microdonta, 333; longifolia, 337; macromera, 256, 265, 273, 297, 312, 316; megalodonta, 311; megaphylla, 256, 260, 266, 273, 281, 282, 311, 316; microphylla, 258, 269, 274, 276, 278, Plates 1194–1195, 279, 284, 286, 287, 304, 309, 310, Plate 1196, 316, 328, 338; monocephala, 266, 267, 272, 274, Plate 1194, 297, 299, 306, Plate 1196, 311, 312, 314, 316, 317, 319, 320, 330, 331, 335; multiflora, 337; Nevinii, 258, 274, Plate 1195, 279, 308, 309, Plate 1196, 316, 338; nutans, 266; nutanticeps, 263, 266, 271, 272, 316, 335; oblongifolia, 270, 297, 316; var. linifolia, 264, 273, 297, 336; oliganthes, 259, 274, Plate 1194, 280, 301, 302, 304, 316, 331, 338; pacayensis, 264, 271, 274, Plate 1195, 287, 299, 316, 320, 337; Palmeri, 304, 306, 311, 315, 337, 340, 343; var. amphothrix, 261, 274, Plate 1194, 285, Plate 1196, 316; paniculata, 262, 274, Plate 1194, 287, 302, 303, 306, Plate 1196, 316, 335; parvula, 307; pendula, 263, 271, Plate 1195, 300, 301, 303, 304, 309, Plate 1196, 316, 331, 335; peninsularis, 265, 274, Plate 1194, 287, 299, 311, 316, 337; pulcherrima, 267, 311, 337; reticulata, 259, Plate 1195, 280, 300, 301, 302, 304, 306, Plate 1196, 316, 338, 342; Robinsoniana, 267; Rusbyi, 262, 274, Plate 1194, 285, 286, 298, 304, 307, Plate 1196, 315, 316, 321, 329, 330, 331, 339, 340; scabra, 258, 274, Plate 1194, 279, 306, 309, Plate 1196, 316, 338; scoparia, 258, 272, 278, Plate 1195, 299, 300, 302, 304, 311, 314, 316; secundiflora, 287, 303, 304, 306, 335, 340; var.

nepetaefolia, 263, 305; var. secundiflora, 263, 274, Plate 1194, 287, 303, 316; simplex, 319, 335; solidaginifolia, 337; squarrosa, 331; subsessilis, 338; tomentella, 263, 274, 287, Plate 1194, 304, 305, 316, 335; urolepis, 281; venosa, 259, 274, Plate 1194, 280, 301, 316, 331, 338; verbenacea, 259, 274, Plates 1194–1195, 280, 300, 301, 302, 316, 338; veronicaefolia, 285, 298, 303, 304, 306, 315, 330, 333, 339; var. senilis, 261, 285, 300, 307, Plate 1196, 316; var. umbratilis, 261, 274, Plate 1194, 285, 316, 333; var. veronicaefolia, 261, 285, 300, 306, Plate 1196, 316, 333; Watsoni, 309, 338; Wislizeni, 265, 274, Plates 1194–1195, 287, 288, 299, 309, Plate 1196, 314, 315, 316, 321, 334, 337, 338

Brickellia, Chromosome Studies in Kuhniinae (Eupatorieae) I., 253, 269, 297, 328

Briggs, W. R., Some Plants of Mount McKinley National Park, McGonagall Mountain Area, 245

British Flora Ancient and Modern, 209

Bromus ciliatus var. genuinus, 118; Dudleyi, 118; inermis, 118; squarrosus, 236; tectorum, 17; var. glabratus, 18; trinii, 236

Butters, F. K. and Abbe, E. C., A Floristic Study of Cook County, Northeastern Minnesota, 21, 63, 116, 161

Calamagrostis canadensis, 41, 43; var. Langsdorfi, 124; var. Macouniana, 124; var. robusta, 124; var. scabra, 124; var. typica, 124; inexpansa var. brevior, 124; purpurascens, 52, 53, 81, 124; scopulorum, 237

Calla palustris, 47, 136

Callicarpa americana, 238, 239

Callicarpa americana in Missouri, The Discovery and Destruction of, 238

Callitriche heterophylla, 237; palustris, 47, 171

Calopogon pulchellus, 295

Calothrix, 105

Caltha natans, 151; palustris, 151

Calypso bulbosa, 76, 142

Campanula americana, 224; aparinoides, 19; lasiocarpa, 247, 252; rapunculoides, 194; rotundifolia, 41, 46, 194; var. intercedens, 194; uliginosa, 195

Capsella Bursa-pastoris, 154

Cardamine bellidifolia, 250; douglasii, 226; parviflora var. arcnicola, 154; f. gracillima, 154; pensylvanica, 154, 224; var. gracilis, 154

Carex, 47; abdita, 132; adjusta, 129; aenea, 129, 130; f. **extrapolata,** 130; f. **flumini-regalis,** 130, 131; alata, 15; angustior, 128; aquatilis, 133; var. altior, 133; arctata, 134; argyrantha, 129; aurea, 133; Backii, 53, 81, 131; brunnescens, 128; Buxbaumii, 133; canescens, 127; var. loliacea, 128; var. subloliacea, 47, 128; castanea, 134; cephalantha, 47, 128; communis, 131; Crawfordii, 47, 128; crinita, 133; cryptolepis, 134; decomposita, 15; deflexa, 53, 81. 132; Deweyana, 128; disperma, 46, 127; filiformis, 134; flava var. fertilis, 134; foenea, 129; gracillima, 134; Halleri, 133; Houghtoniana, 47, 133; Houghtonii, 133; hystricina, 135; inflata var. utriculata, 135; intumescens var. Fernaldi, 135; lasiocarpa var. americana, 134; lenticularis, 133; leptalea, 131; leptonervia, 134; limosa, 133; livida, 134; media, 53, 54, 133; var. Steveni, 133; Merritt-Fernaldii, 128; Michauxiana, 135; microchaeta, 248, 249; nesophila, 249; norvegica, 133; obesa var. minor, 81, 131; Oederi, var. pumila, 134; ormostachya, 82, 134; pauciflora, 135; paupercula, 133; var. pallens, 47, 133; Peckii, 132; pedunculata, 133; podocarpa, 248; pratensis, 131; praticola, 53, 131; projecta, 128; retrorsa, 135; var. Robinsonii, 135; rostrata var. utriculata, 48, 135; Rossii, 82, 132; rugosperma, 132; saltuensis, 134; scoparia, 54, 128; stipata, 127; straminea, 15; stricta, 133; substricta, 133; supina, 53, 81, 131; tenuiflora, 44, 127; tonsa, 132; tribuloides, 128; trisperma, 127; umbellata, 132; vaginata, 47, 134; Vahlii var. inferalpina, 133; var. typica, 133;

vallicola, 237; vesicaria, 135; viridula, 134; xerantica, 46, 53, 81, 129
Carum Carvii, 47, 178
Cassiope hypnoides, 295; tetragona, 248, 251
Castilleja pallida ssp. mexiae, 251; septentrionalis, 77, 189
Caulophyllum thalictroides, 156
Ceanothus americanus, 174; ovatus, 225
Celastrus scandens, 172
Centaurea diffusa, 228, 237; maculata, 237
Cephalanthus occidentalis var. pubescens, 15
Cerastium beeringianum, 53, 82, 148; nutans, 148; vulgatum var. hirsutum, 148; f. glandulosum, 148
Cerasus pennsylvanica, 295
Chamaedaphne calyculata, 42, 44, 47, 51, 181
Chamaesaracha grandiflora, 189
Chelidonium majus, 224
Chelone glabra, 189
Chenopodium album, 147; capitatum, 147; hybridum var. gigantospermum, 46, 146
Chesapeake Bay, Borrichia frutescens from, 58
Chimaphila umbellata var. cisatlantica, 44, 46, 179
Chiogenes hispidula, 181, 295
Chordaria, 105
Chorispora tenella, 237
Chromosomes of Disporum maculatum, The, 61
Chromosome Studies in Kuhniinae (Eupatorieae) I. Brickellia, 253, 269, 297, 328
Chrysanthemum cinerarifolium, 313; Leucanthemum, 47; var. pinnatifidum, 199
Chrysosplenium americanum, 54, 78, 164; Wrightii, 251
Cinna arundinacea var. inexpansa, 159; latifolia, 125
Circaea alpina, 176
Cirsium arvense, 200; canescens, 237; discolor f. albiflorum, 160; Flodmani, 362; f. **albiflorum,** 362; lanceolatum, 200, 308; muticum, 200; plattense, 362; undulatum, 200; var. megacephalum, 362; vulgare, 200; 268
Cirsium Flodmani (Rydb.) Arth., f. albiflorum, forma nova, 362
Claytonia caroliniana, 148; sarmentosa, 248, 249; scammaniana, 249
Clematis dioscoreifolia, 160; verticillaris, 151; virginiana f. missouriensis, 151
Clintonia borealis, 45, 46, 138
Cnicus benedictus, 313
Collinsia violacea f. **pallida,** 159
Colorada, Braya in, 109
Color Form of Helianthus mollis, 108
Comptonia peregrina, 143
Convolvulus spithamaeus, 46, 156, 186; var. pubescens, 186; var. stans, 186
Conyza canadensis, 197
Coptis groenlandica, 46, 151
Corallorhiza maculata, 141; f. flavida, 141; striata, 141; trifida, 141
Cornus alternifolia, 179; canadensis, 45, 46, 178, 295; rugosa, 179; sericea, 178; stolonifera, 42, 47, 178; var. Baileyi, 178
Corydalis aurea ssp. aurea, 152; flavula, 225; sempervirens, 46, 152
Corylus cornuta, 45, 46, 143
Crataegus columbiana, 54; var. Piperi, 80, 166; Douglasii, 54, 80, 167
Crepis capillaris, 19; nana, 252
Cryptogramma Stelleri, 53, 79, 100
Cuscuta campestris, 225
Cynoglossum boreale, 187
Cyperus filicinus, 290
Cypripedium acaule, 140; arietinum, 78, 139; Calceolus var. parviflorum, 82, 139; parviflorum, 139
Cystopteris fragilis, 97; var. laurentiana, 53, 76, 97; var. Mackayii, 53, 97

Danthonia spicata, 123, 124; var. pinetorum, 46, 80, 122, 123, 124; thermalis, 123
Davis, E. L. and Torrey, R. E., The Old Massachusetts Herbarium, 7
Decodon verticillatus, 15
Dentaria laciniata, 156, 226
Deschampsia caespitosa, 42; var. glauca, 122; flexuosa, 51, 81, 122
Descurainia brachycarpa, 154; pinnata var. brachycarpa, 154
Desmodium, 355
Dianthus armeria, 237

Diapensia lapponica, 219; ssp. obovata, 251
Dicentra Cucullaria, 156
Diervilla Lonicera, 192
Digitaria sanguinalis, 225
Diodia virginiana, 16
Diplachne fascicularis, 289
Diplotaxis erucoides from Western United States, Erroneous Record of, 291
Dipsacus laciniatus, 268
Dipsacus laciniatus in Illinois, 268
Dirca palustris, 18
Discovery and Destruction of Callicarpa americana in Missouri, The, 238
Disporum Hookeri, 62; lanuginosum, 62; maculatum, 61; Smithii, 62; trachycarpum, 62
Disporum maculatum, The Chromosomes of, 61
Dodecatheon amethystinum and forma margaritaceum in the Missouri Ozarks, 226
Dodecatheon amethystinum, 226, 227; f. margaritaceum, 227; frigidum, 251
Draba alpina, 250; apiculata, 232, 233; arabisans, 53, 152, 153; var. canadensis, 152; var. **superiorensis,** 153; aurea, 235; crassifolia, 235; cuneifolia, 153; var. leiocarpa, 153; densifolia, 247, 250; eschscholtzii, 250; graminea, 109; incerta, 229, 232; lanceolata, 235; Lemmoni, 323, 324; var. cyclomorpha, 323; var. **incrassata,** 323; var. Lemmoni, 323; lonchocarpa, 234, 235; var. **Thompsonii,** 235; nemorosa, 153; var. lejocarpa, 53, 153; nivalis, 234, 250; var. **brevicula,** 233; 234; var. elongata, 234; var. exigua, 234; var. Thompsonii, 235; norvegica, 53, 81, 152; oligosperma, 230, 232; Paysonii, 233; **pectinipila,** 230, 231, 232; pseudopilosa, 250; reptans, 153; var. micrantha, 153; stenoloba, 235
Draba on Clay Butte, Wyoming, 229
Dracocephalum parviflorum, 188
Drosera intermedia, 162; longifolia, 162; rotundifolia 162
Dryas octopetala, 248, 251
Dryopteris campyloptera, 225; cristata, 47, 98; disjuncta, 46, 98; fragrans var. remotiuscula, 98; Linnaeana, 98; Phegopteris, 98; Robertiana, 98; spinulosa, 46, 98; var. americana, 47, 98; var. dilatata, 80; var. fructuosa, 98; var. intermedia, 98
Dulichium arundinaceum, 126
Duncan, W. H., Taxonomic Collections of Vascular Plants in the Southeastern States—Their Abundance and Relation to Production of Floras, 353

Echinocystis lobata, 194, 225
Echinodorus tenellus, 15
Echinops spinosus, 308
Echium vulgare, 187
Eleocharis acicularis, 126; calva, 126; diandra, 1, 2, 4, 6, Plates 1188, 1189; elliptica, 126; Engelmanni, 3, 4, 6, Plates 1188, 1189; var. robusta, 3, 6; Plates 1188, 1189; equisetoides, 15; lanceolata, 3; Macounii, 2; monticola, 3; nitida, 54, 83, 126; obtusa, 1, 2, 3, 4, 5, 6, Plates 1188, 1189; var. ellipsoidalis, 3, 6, Plates 1188, 1189; var. gigantea, 3, 5, 6, Plates 1188, 1189; var. jejuna, 1, 5, 6, Plates 1188, 1189; var. Peasei, 3; olivacea, 1; ovata, 1, 2, 3, 4, 5, 6, Plates 1188, 1189; var. Heuseri, 126; pachystyla, 3; palustris, 1, var. major, 48, 126; Smallii, 126; viridans, 3
Eleocharis obtusa-ovata complex, The, 1
Elodea canadensis, 48, 118; virginica, 295
Elymus arenarius, 52; canadensis, 156; riparius, 156; virginicus, 54; var. typicus, 121; Wiegandii, 54, 83, 121
Elymus riparius in Illinois, 156
Elytrigia Smithii, 362
Empetrum atropurpureum, 51, 80, 84, 171, 172; nigrum, 51, 84, 171, 172, 295
Enteromorpha, 104, 105
Epigaea repens, 181
Epilobium angustifolium, 42, 43, 45, 176; f. albiflorum, 19; f. spectabile, 268; glandulosum var. adenocaulon, 176; latifolium, 247, 251, 268; f. leucanthum, 268; f. **Munzii,** 268; leptophyllum, 176; palustre, 176
Epilobium latifolium, L., Another Color Form of, 268
Equisetum arvense, 42, 89; var. boreale, 89, 225; fluviatile, 90; f.

linnaeanum, 90; hiemale var. affine, 46, 90; palustre, 82, 90; pratense, 89; scirpoides, 47, 51, 78, 90; sylvaticum var. pauciramosum f. multiramosum, 89; variegatum, 90
Eragrostis poaeoides, 18
Erechtites hieracifolia, 225
Erie Archipelago (Ontario), Additions to the Flora of the, 224
Erigeron angulosus var. kamtschaticus, 197; canadensis, 197; coulteri, 197; elongatus, 197; eriocephalus, 252; philadelphicus, 196; purpuratus, 252; strigosus, 197; var. septentrionalis, 197
Eriocaulon septangulare, 54, 80, 136
Eriophorum angustifolium, 127; spissum, 127
Erodium cicutarium, 222
Erroneous Record of Diplotaxis erucoides from Western United States, 291
Erskine, J. S., Additions and Extensions to the Flora of Nova Scotia, 17
Erucastrum gallicum, 154, 291, 292
Eryngium prostratum, 15, 16
Erysimum repandum, 225
Eupatorium hyssopifolium, 16; var. calcaratum, 16; maculatum, 195, 237; f. Faxoni, 19; var. foliosum, 195; perfoliatum, 195
Euphorbia, 355; heterophylla var. graminifolia, 160; hypericifolia, 242; maculata, 241, 242, 243; nutans, 241; preslii, 241; supina, 241, 242, 243
Euphorbia maculata L., Typification of, 241
Euphrasia arctica, 190, 191; hudsoniana, 51, 76, 190, 191; subarctica, 190, 191

Fahey, E. M., The Repopulation of Intertidal Transects, 102
Festuca altaica, 248; brachyphylla, 118, 119; saximontana, 118, 119
Filago arvensis, 228, 237; f. subsimplex, 228
Filago arvensis in Michigan: A Second North American Record, 228
Floerkea proserpinacoides, 225
Floristic Study of Cook County, Northeastern Minnesota, A, 21, 63, 116, 161
Fosberg, F. R., Typification of Euphorbia maculata L., 241
Fragaria vesca var. americana, 167; virginiana, 46, 167
Fraxinus nigra, 43, 46, 47, 186; pennsylvanica, 185; var. lanceolata, 185; var. subintegerrima, 185
Further Light on Aaron Young, Jr.'s Flora of Maine, 293

Gaiser, L. O., Chromosome Studies in Kuhniinae (Eupatorieae) I. Brickellia, 253, 269, 297, 328
Galeopsis Tetrahit, 188
Galium asprellum, 192; circaezans var. hypomalacum, 225; labradoricum, 192; palustre ssp. tetraploideum, 218; tinctorium, 192; trifidum, 46, 47, 192; ssp. tinctorium, 192; triflorum, 192
Gaultheria hispidula, 46, 47, 181; procumbens, 181
Gentiana glauca, 251; rubricaulis, 186
Genus Lyonia in Missouri, The, 155
Geocaulon lividum, 51, 145
Geranium Bicknellii, 46, 171; carolinianum, 225; nepalense var. Thunbergii, 348
Gerardia fasciculata, 159; f. **albiflora,** 159
Geum aleppicum var. strictum, 168; macrophyllum, 168; rivale, 168, 223; rossii, 248, 251
Glyceria acutiflora, 15; borealis, 47, 119; canadensis, 47, 119; Fernaldii, 48, 119; grandis, 119; striata, 47, 119; var. stricta, 47, 119
Gnaphalium Macounii, 47, 197; obtusifolium, 225; polycephalum, 225
Goodyera repens, 46; var. ophioides, 141; tesselata, 141
Gratiola aurea, 19; neglecta, 189; viscidula, 15
Grindelia squarrosa, 228

Habenaria blephariglottis, 11; clavellata, 11; dilatata, 82, 140; Hookeri, 140; hyperborea var. huronensis, 140; obtusata, 45, 46, 140; orbiculata, 140; psycodes, 83, 140; viridis var. bracteata, 140
Hackelia americana, 187; deflexa var. americana, 187
Halenia deflexa, 46, 77, 186
Hanes, C. R., Allium tricoccum Ait., var. **Burdickii,** var. nov., 243

Haplopappus multicaulis, 237; nanus, 237
Hedyotis Boscii, 15; crassifolia, 202; patens, 203; rosea, 201, 202, 203; Taylorae, 202
Hedyotis rosea Raf., The Identity of, 201
Helianthus borealis, 198; laetiflorus var. rigidus, 198; maximiliani, 198; mollis, 108; strumosus, 225
Helianthus mollis forma **flavida**, 108
Henry, L. K., Podophyllum peltatum forma Deamii Raymond in Western Pennsylvania, 20
Henry, M. G., A New Hybrid Deciduous Rhododendron, 205
Hepatica acutiloba, 156; americana, 156
Heracleum lanatum, 178, 225; maximum, 178
Heteranthera dubia, 57
Heteranthera dubia (Jacq.) MacM., A New Hampshire Station for, 57
Heuchera Richardsonii, 46, 163; var. hispidior, 163
Hexandria Trigynia, 9
Hibiscus Trionum, 11
Hieracium aurantiacum, 201; canadense, 201; scabriusculum, 201; scabrum, 201; umbellatum, 201
Hierochloë alpina, 248; odorata, 125; var. fragrans, 125
Hippuris vulgaris, 177, 223; f. fluviatilis, 48, 177; var. rhaetica, 177
Hodgdon, A. R. and Krochmal, S. B., A New Hampshire Station for Heteranthera dubia (Jacq.) MacM., 57
Hodgdon, A. R. and Steele, F. J., Pinguicula vulgaris L. in New Hampshire, 349
Homogyne alpina, 219
Hordeum jubatum, 121
Hottonia inflata, 15
Houstonia longifolia, 84, 192; minima, 202; patens var. pusilla, 202; pusilla, 203; pygmaea, 201, 202; tenella, 202
How Many Species of Vascular Plants Grow without Cultivation in Massachusetts?, 361
Hybrid Amorpha and New Forms and Records from Missouri, A, 157
Hydrolea uniflora, 15
Hydrophyllum appendiculatum, 225; virginianum, 156
Hypericum majus, 174; virginicum var. Fraseri, 174

Identity of Hedyotis rosea Raf., The, 201
Ilex decidua, 16
Illinois, Dipsacus laciniatus in, 268; Elymus riparius in, 156; Plants Recently Found in Southern, 290
Impatiens biflora, 173; capensis, 173
Intertidal Transects, The Repopulation of, 102
Ipomoea hederacea var. integriuscula, 160
Iris Pseudacorus, 244; versicolor, 139, 244
Iris Pseudacorus L. Established in the Vicinity of London, Ontario, 244
Isoëtes engelmanni, 291; macrospora, 48, 77, 94; muricata, 48, 77, 94

Jennings, O. E., A Range Extension for Sugar Maple, 59
Jones, G. N., Nomenclature of American Mountain-ash, 358
Judd, W. W., Iris Pseudacorus Established in the Vicinity of London, Ontario, 244
Juncus alpinus var. rariflorus, 137; brevicaudatus, 47, 136; bufonius, 47, 136; Dudleyi, 136, 226; effusus var. decipiens, 136; var. Pylaei, 47, 136; filiformis, 136; nodosus, 136; pelocarpus, 137; tenuis f. Williamsii, 47, 136; var. Dudleyi, 136; var. multicornis, 136; Vaseyi, 136
Juniperus communis var. depressa, 41, 101; var. montana, 101; var. saxatilis, 101; horizontalis, 41, 101; utahensis, 238

Kalmia polifolia, 51, 181
Koenigia islandica, 219
Krochmal, S. B. and Hodgdon, A. R., A New Hampshire Station for Heteranthera dubia (Jacq.) MacM., 57
Kucera, C. L., Additional Notes on Grasses of Boone County, Missouri, 289; The Genus Lyonia in Missouri, 155
Kuhniinae (Eupatorieae) I. Brickellia, Chromosome Studies in, 253, 269, 297, 328

Lactuca biennis, 201; floridana var. floridana, 225; ludoviciana, 46, 201
Lane, F. G., A New Color Form of Triosteum angustifolium, 346
Lappula echinata, 187
Larix laricina, 42, 43, 47, 101
Lathyrus, 355; japonicus var. glaber, 52, 170; f. spectabilis, 170; ochroleucus, 45, 170; venosus var. intonsus, 170
Ledum groenlandicum, 12, 44, 47, 51, 181; latifolium, 12, 13, 295; palustre ssp. decumbens, 251
Lemna minor, 136
Lepage, E., Another Color Form of Epilobium latifolium L., 268
Lepidium densiflorum, 154
Lespedeza, 355
Liatris 353; ligulistylis, 362
Ligusticum mutellinoides ssp. alpinum, 251
Lilium philadelphicum var. andinum, 138
Linaria vulgaris, 189
Linnaea borealis var. americana, 46, 193
Liparis lilifolia, 156; Loeselii, 83, 142
Listera auriculata, 77, 141; convallarioides, 79, 141; cordata, 141
Lithospermum latifolium, 156; linearifolium, 225
Lloydia serotina, 249
Lobelia cardinalis, 295; Dortmanna, 48, 54, 195; inflata, 225; Kalmii, 195
Loiseleuria procumbens, 248, 251
Lonicera canadensis, 45, 46, 192, 193; × L. oblongifolia, 193; ciliata, 295; dioica var. glaucescens, 172, 193; hirsuta, 193; oblongifolia, 193; villosa var. Solonis, 192
Löve, D., Cirsium Flodmani (Rydb.) Arth., f. **albiflorum,** forma nova, 362
Luzula acuminata, 137; confusa, 247, 249; multiflora, 137; parviflora, 76, 137; var. melanocarpa, 137; saltuensis, 137
Lychnis alba, 148
Lycopodium annotinum, 45, 46, 92; var. acrifolium, 92; var. pungens, 92; **Lycopodium × Buttersii,** 89, 91, 92; clavatum, 92, 295; var. laurentianum, 92; var. megastachyon, 92; var. subremotum, 92; complanatum, 93; var. canadense, 93; var. elongatum, 93; dendroideum, 295; lucidulum, 91, 92, 295; obscurum, 92; var. dendroideum, 45, 93; f. exsertum, 93; Selago, 17, 90, 91, 295; var. patens, 90, 92; tristachyum, 93
Lycopus americanus, 188; var. scabrifolius, 225; uniflorus, 188; virginicus, 225
Lyonia in Missouri, The Genus, 155
Lyonia mariana, 155
Lysimachia nummularia, 225; terrestris, 47, 185; thyrsiflora, 185

Maianthemum canadense, 45, 46, 48, 138; var. interius, 48, 138, 173
Maine, Further Light on Aaron Young, Jr.'s Flora of, 293
Malaxis unifolia, 141
Maple, A Range Extension for Sugar, 59
Massachusetts Herbarium, The Old, 7; How Many Species of Vascular Plants Grow without Cultivation in, 361; Two Unusual Plants in Essex County, 348
Matricaria inodora, 199; maritima, 238; var. agrestis, 199; matricarioides, 199; suaveolens, 199
Matthiola incana, 321
McKinley National Park, McGonagall Mountain Area, Some Plants of Mount, 245
Medeola virginica, 11
Megalodonta Beckii, 47, 198
Melampyrum americanum, 295; lineare, 46; var. americanum, 190; var. lineare, 189
Melandrium furcatum, 250
Melica striata, 118
Melilotus alba, 170; officinalis, 170
Mentha arvensis var. villosa, 188; canadensis, 188
Menyanthes trifoliata var. minor, 186
Merethrepta pinetorum, 123
Mertensia paniculata, 45, 187
Michigan: A Second North American Record, Filago arvensis in, 228
Microstylis, unifolia, 82, 141
Mikania pubescens, 313
Mimulus alatus f. albiflorus, 160; ringens, 189
Minnesota, A Floristic Study of Cook County, Northeastern, 21, 63, 116, 161

Minuartia macrocarpa, 247, 248, 249
Missouri, Additional Notes on Grasses of Boone County, 289; A Hybrid Amorpha and New Forms and Records from, 157; Ozark Region, Another Coastal Plain Relict in the, 15; Ozarks, Dodecatheon amethystinum and forma margaritaceum in the, 226; The Discovery and Destruction of Callicarpa americana in, 238; The Genus Lyonia in, 155
Mitchella repens, 192
Mitella nuda, 46, 164
Mollugo verticillata, 147
Moneses uniflora, 46, 179
Monotropa Hypopithys, 181; uniflora, 47, 181
Montana Plant Distribution Records, 236
Montgomery, F. H., A Nomenclatural Note in the Genus Tragopogon, 325
Mountain-ash, Nomenclature of American, 358
Muehlenbergia cuspidata, 362; frondosa f. commutata, 289
Myrica asplenifolia, 143; Gale, 43, 47, 143
Myriophyllum alterniflorum, 177; var. americanum, 48, 176; exalbescens, 177

Najas flexilis, 48, 117; gracillima, 15, 117
New Color Form of Triosteum angustifolium, A, 346
New Hampshire, Pinguicula vulgaris L. in, 349; Station for Heteranthera dubia (Jacq.) MacM., A, 57
New Hybrid Deciduous Rhododendron, A, 205
Nomenclatural Note in the Genus Tragopogon, A, 325
Nomenclature of American Mountain-ash, 358
Nova Scotia, Additions and Extensions to the Flora of, 17
Nuphar microphyllum, 148; × rubrodiscum, 48; 149; variegatum, 149
Nymphaea odorata, 149; tetragona, 149
Nyssa aquatica, 15; sylvatica, 270

Oenothera biennis, 176; var. hirsutissima, 176; muricata, 176; parviflora, 176; perennis, 176; strigosa, 176
Old Massachusetts Herbarium, The, 7
Onoclea sensibilis, 97
Ontario, Additions to the Flora of the Erie Archipelago, 224; Iris Pseudacorus L. Established in the Vicinity of London, 244
Orchis Blephariglottis, 11; orbiculata, 295; Tridentata, 11
Ornithogalum umbellatum, 11
Orthocarpus luteus, 362
Oryzopsis asperifolia, 125; canadensis, 125; pungens, 45, 46, 125
Osmorhiza Claytoni, 48, 177; obtusa, 81, 178
Osmunda cinnamomea, 47, 95; Claytoniana, 46, 95; regalis var. spectabilis, 95
Ownbey, M., The Chromosomes of Disporum maculatum, 61
Oxalis, 355; acetosella, 12; montana, 12, 46, 47, 170
Oxyria digyna, 249
Oxytropis ixodes, Plate 1190, 52, 53, 82, 170; f. ecaudata, 52, 53, 82, 170; nigrescens ssp. pygmaea, 251; splendens, 362

Palmer, E. J., A Hybrid Amorpha and New Forms and Records from Missouri, 157
Panax quinquefolius, 156
Panicum clandestinum, 18; flexile, 225; linearifolium, 126; subvillosum, 126; virgatum, 362
Papaver radicatum, 247, 250
Parnassia Kotzebuei, 251; palustris, 54; var. neogaea, 51, 53, 79, 164
Paronychia argyrocoma var. albimontana, 351
Parrya nudicaulis, 232
Parthenocissus inserta, 172, 174; vitacea, 174
Paspalum laeviglume, 289; pubiflorum var. glabrum, 289
Passiflora caerulea, 8
Pastinaca sativa, 178
Pedicularis capitata, 251; lanata, 252; verticillata, 252
Pennsylvania, Podophyllum peltatum forma Deamii Raymond in Western, 20
Petasites palmatus, 199; sagittatus, 199
Phacelia Franklinii, 53, 77, 186; ranunculacea, 291
Phalaris arundinacea, 125, 289

Phleum pratense, 125
Phragmites communis, 121
Phyllodoce caerulea, 295
Physalis grandiflora, 189; subglabrata, 225
Physocarpus opulifolius, 51, 164
Physostegia speciosa, 188; virginiana var. speciosa, 188
Picea canadensis, 100; glauca, 41, 45, 100; mariana, 6, 41, 42, 46, 47, 100; rubens, 6
Pinguicula vulgaris, 51, 76, 191, 349, 350, 351, 352
Pinguicula vulgaris, L. in New Hampshire, 349
Pinus Banksiana, 41, 44, 45, 101; resinosa, 45, 46, 101; Strobus, 45, 101
Plantago asiatica, 192; major, 191; var. asiatica, 192; var. pachyphylla, 191; var. Pilgeri, 191; Purshii, 192; virginica, 53, 83, 192
Plants Recently Found in Southern Illinois, 290
Pluchea foetida, 15, 16
Poa angustifolia, 119; annua, 119; arctica, 248; compressa, 46, 119; Fernaldiana, 121; glauca, 120, 248; ssp. conferta, 120; var. laxiuscula, 120; ssp. glaucantha, 120; interior, 46, 119; nemoralis, 120; var. interior, 119; var. montana, 120; palustris, 45, 47, 120; pratensis, 119; var. angustifolia, 119; saltuensis, 79, 119; var. microlepis, 79, 119; scopulorum, 52, 53, 80, 83, 120; P. × tormentuosa, 120
Podophyllum peltatum, 20; f. Deamii, 20
Podophyllum peltatum forma Deamii Raymond in Western Pennsylvania, 20
Pogonia ophioglossoides, 83, 140
Polemonium boreale, 247, 251
Polunin, N., British Floras Ancient and Modern, 209
Polygala, 355; paucifolia, 171, 295; polygama, 295
Polygonatum biflorum, 48, 173, 225; pubescens, 139, 225
Polygonum achoreum, 146; amphibium var. stipulaceum, 146; aviculare, 146; var. littorale, 225; bistorta ssp. plumosum, 248, 249; cilinode, 146; coccineum, 225; Convolvulus, 146, 225; Douglasii, 53, 80, 146; erectum, 145; Hydropiper, 47, 146; lapathifolium, 146; natans f. genuinum, 146; f. Hartwrightii, 146; Persicaria, 146; scabrum, 146; viviparum, 51, 76; 146; 249
Polypodium virginianum, 100; vulgare, 100
Polysiphonia, 105
Populus balsamifera, 143; tremuloides, 45, 143
Potamogeton amplifolius, 117; Berchtoldi, 48, 116; epihydrus, var. Nuttallii, 15, 48, 117; var. typicus, 116; foliosus var. macellus, 116; gramineus, 11, 48; var. maximus, 117; var. typicus, 117; Natans, 11, 117; nodosus, 117; perfoliatus, 42; praelongus, 48, 117; pulcher, 15; Richardsonii, 117; Robbinsii, 116; Spirillus, 48, 116; zosteriformis, 116
Potentilla Anserina, 362; arguta, 168; bipinnatifida, 362; fruticosa, 51, 167; var. tenuifolia, 167; glabrella, 168; gracilis var. pulcherrima, 82, 168; monspeliensis, 168; norvegica var. hirsuta, 168; palustris, 47, 168; pensylvanica, 168; tridentata, 41, 46, 168
Prairie Variety of Solidago gigantea, 322
Prenanthes alba, 210, 225
Primula intercedens, 51, 76, 184, 185; mistassinica, 51, 184, 185
Prunella vulgaris var. lanceolata, 188; f. iodocalyx, 188
Prunus borealis, 295; pensylvanica, 45, 169; susquehanae, 169; virginiana, 169
Pteretis pensylvanica, 97; f. pubescens, 97
Pteridium aquilinum var. latiusculum, 45, 46, 100
Pyrola asarifolia, 180; chlorantha, 180; elliptica, 180; grandiflora, 251; minor, 54, 180; rotundifolia, 295; var. americana, 180; secunda, 46, 179, 295; var. obtusata, 180; uniflora, 295; virens, 180; f. paucifolia, 180
Pyrus americana, 45, 46, 165, 358, 359, 360; var. decora, 358, 360; decora, 46, 165; dumosa, 360; melanocarpa, 165; micrantha, 358; microcarpa, 358, 360; sambucifolia, 360; sitchensis, 360

Quercus macrocarpa, 226

Range Extension for Sugar Maple, A, 59
Ranunculus abortivus var. acrolasius, 150; var. typicus, 150; acris, 47, 150; Cymbalaria, 13; filiformis, 13; Flammula var. reptans, 150; lapponicus, 77; 149; Macounii, 54, 82, 150; micranthus var. delitescens, 160; nivalis, 250; pennsylvanicus, 13; 150; reptans, 13, 150; septentrionalis, 46; trichophyllus, 42; var. eradicatus, 149; var. typicus, 149
Repopulation of Intertidal Transects, The, 102
Rhamnus alnifolia, 173
Rhododendron, A New Hybrid Deciduous, 205
Rhododendron × **gladwynense,** 207, 208, Plate 1193; lapponicum, 295; prunifolium, 205, 206, 207; × R. serrulatum, 206; serrulatum, 206
Rhus radicans, 172
Rhynchospora alba, 127; capitellata, 18
Ribes, 46; americanum 226; glandulosum, 164; hirtellum, 164; hudsonianum, 164; lacustre, 164; oxyacanthoides, 164; prostratum, 164; triste, 164
Rollins, R. C., Angiosperm Pollen (Review), 203; Braya in Colorado, 109; Draba Lemmoni, 323; Draba on Clay Butte, Wyoming, 229; How Many Species of Vascular Plants Grow without Cultivation in Massachusetts?, 361
Rorippa islandica, 160; var. Fernaldiana, 154, 160; var. hispida, 154, 225; var. microcarpa, 154
Rosa acicularis, 44, 169; var. Bourgeauiana, 169; var. lacorum, 169; var. rotunda, 169; var. Sayiana, 169, blanda, 169
Rubus idaeus var. canadensis 169; var. strigosus, 45, 169; nutkanus, 54; parviflorus, 45, 169; pubescens 46, 168
Rudbeckia hirta, 198; laciniata, 225
Ruellia, 353
Rumex Acetosella, 145, 225; crispus, 145; mexicanus, 145

Sabatia, 353, 357
Sagina nodosa, 51, 79, 147
Sagittaria cuneata, 48, 118; latifolia, 118; f. gracilis, 48, 118
Salix, 42, 45, 47, 51; alaxensis, 249; arctica, 249; Bebbiana, 142; × S. planifolia, 142; crassijulis, 249; discolor, 142; var. eriocephala, 142; var. latifolia, 142; gracilis, 142; humilis, 142; pedicellaris var. hypoglauca, 44, 142; pellita, 54, 83, 143; phlebophylla, 249; petiolaris var. rosmarinoides, 142; planifolia, 142; pyrifolia, 142; reticulata, 249; rigida, 226; rotundifolia, 249; torulosa, 249
Sambucus pubens, 194
Sanguinaria canadensis, 156
Sanguisorba occidentalis, 238; officinalis, 18
Sanicula marilandica, 177
Sarracenia purpurea, 162
Satureja vulgaris, 188
Saussurea viscida, 247; var. yukonensis, 252
Saxifraga Aizoon, 53; var. neogaea, 80, 163; bronchialis ssp.funstonii, 251; caespitosa ssp. sileniflora, 251; cernua, 53; var. latibracteata, 52, 81, 163; eschscholtzii, 251; flagellaris, 251; lyallii, 247, 251; nivalis, 163; oppositifolia, 245, 247, 251; rivularis, 251; serpyllifolia, 247, 251; virginiensis, 79, 162; f. glomerulata, 163
Scheuchzeria palustris, 83; var. americana, 54 117
Schizachne purpurascens, 45, 118
Scirpus acutus, 127; atrocinctus, 127; f. brachypodus, 127; cespitosus, 41; var. callosus, 126; etuberculatus, 15, 16; fluviatilis, 127; Hallii, 15; hudsonianus, 54, 80, 127; pedicellatus, 47, 48, 127; rubrotinctus, 127; subterminalis, 127
Scrophularia lanceolata, 189; leporella, 189
Scutellaria epilobiifolia, 47, 188; galericulata, 188; lateriflora, 188
Scytosiphon, 105
Sedum rosea, 248, 251
Selaginella, 353; rupestris, 46, 93; Selaginoides, 51, 76, 93
Senecio atropurpureus var. tomentosus, 252; aureus, 200; eremophilus, 53, 81, 200; Kingii, 200; pauperculus, 200; var. Balsamitae, 200; f. inchoatus, 200
Setaria Faberi, 289
Shepherdia canadensis, 53, 82, 176

Shinners, L. H., Filago arvensis in Michigan: A Second North American Record, 228; Prairie Variety of Solidago gigantea, 322
Sicyos angulatus, 225
Silene acaulis, 247, 248, 249; antirrhina, 11, 148; Armeria, 47, 148; cserei, 238
Sinapis arvensis, 154
Sisymbrium humile, 109; torulosum, 109
Sisyrinchium angustifolium, 139; montanum var. crebrum, 139
Sium cicutaefolium, 178; suave, 178
Smelowskia borealis var. Koliana, 247, 250; var. villosa, 250
Smilacina racemosa, 48, 138, 173; var. racemosa, 225; trifolia, 138
Smilax ecirrhata, 156
Smith, L. B., Borrichia frutescens from Chesapeake Bay, 58
Solidago, 45; altissima, 322; canadensis, 195; dumetorum, 322; flexicaulis × macrophylla, 19; gigantea, 322; var. gigantea, 322; var. leiophylla, 196, 322; var. **Pitcheri,** 322; var. salebrosa, 322; graminifolia, 196; hispida var. arnoglossa, 195; var. typica, 195; juncea, 195; lepida var. elongata, 322; var. fallax, 196; nemoralis, 195; Pitcheri, 322; pruinosa, 322; satanica, 322; uliginosa, 44, 195
Solidago gigantea, Prairie Variety of, 322
Some Plants of Mount McKinley National Park, McGonagall Mountain Area, 245
Sonchus arvensis, 201; var. arvensis, 225
Sorbus americana, 165, 358, 359, 360; var. decora, 360; aucuparia, 359; var. α 359, 360; var. β 358, 359, 360; decora, 165, 358, 359, 360; micrantha, 358, 360; microcarpa, 359, 360; scopulina, 360; subvestita, 165
Southeastern States—Their Abundance and Relation to Production of Floras, Taxonomic Collections of Vascular Plants in the, 353
Sphagnum, 44, 247
Sparganium americanum, 116; angustifolium, 48, 116, 223; chlorocarpum, 116; var. acaule, 116; fluctuans, 116; hyperboreum, 17; minimum, 116
Sphenopholis intermedia, 289; pallens, 289
Spiranthes gracilis, 46, 140; Romanzoffiana, 80, 140
Spirea alba, 47, 165
Stachys palustris, 188
Staphylea trifolia, 156
Steele, F. L. and Hodgdon, A. R., Pinguicula vulgaris L. in New Hampshire, 349
Stellaria borealis, 14; calycantha, 14, 54, 79, 148; var. floribunda, 54, 148; crassifolia, 249; Holostea, 18; longifolia, 147; longipes, 249; media, 11, 147, 225
Steyermark, J. A., Another Coastal Plain Relict in the Missouri Ozark Region, 15; Color Form of Helianthus mollis, 108; Dodecatheon amethystinum and forma margaritaceum in the Missouri Ozarks, 226; Elymus riparius in Illinois, 156; The Discovery and Destruction of Callicarpa americana in Missouri, 238
Streptopus amplexifolius var. americanus, 138; var. denticulatus, 138; roseus var. longipes, 46, 138
Stipa spartea, 362
Subularia aquatica, 48, 54, 83, 154
Svenson, H. K., The Eleocharis obtusa-ovata complex, 1
Symphoricarpos albus, 193; var. pauciflorus, 193
Symphytum asperum, 238
Synthyris borealis, 247, 251
Syringa villosa, 186

Taraxacum kamtchaticum, 252; palustre, 201
Taxonomic Collections of Vascular Plants in the Southeastern States—Their Abundance and Relation to Production of Floras, 353
Taxus canadensis, 100
Tephrosia, 343
Teucrium canadense, 225
Thalictrum dioicum, 156; dasycarpum, 47, 150
Therefon richardsonii, 248, 251
Thieret, J. W., Dipsacus laciniatus in Illinois, 268
Thlaspi arvense, 153
Thuja occidentalis, 42, 43, 46, 47, 101
Tiarella cordifolia, 295
Tilia americana, 11, 174; Glabra, 11
Tofieldia coccinea, 249; palustris, 137; pusilla, 51, 76, 137
Torrey, R. E. and Davis, E. L., The Old Massachusetts Herbarium, 7

Torularia humilis ssp. arctica, 114, 115; torulosa, 110
Tragopogon, A Nomenclatural Note in the Genus, 325
Tragopogon dubius, 325, 326, Plate 1197, 327; ssp. dubius, 326, 327; ssp. major, 325, 326, 327; major, 325, 326, 327; ssp. dubius, 326, 327; pratensis, 326
Trientalis amercana, 46; borealis, 45, 185
Trifolium agrarium, 14, 170; hybridum, 169; pratense, 169; procumbens, 170; repens, 169
Triglochin palustris, 84, 117
Trillium cernuum, 139; var. macranthum, 139; var. **terraenovae,** 101; erectum, 156, 295; f. **sessiloides,** 102; erythrocarpum, 295; flexipes, 156; pictum, 295
Trillium, Two New Variations in, 101
Triodia stricta, 289
Triosteum angustifolium, 346, 347; f. **rubrum,** 347; aurantiacum, 346; hispidum, 346, 347
Triosteum angustifolium, A New Color Form of, 346
Trisetum spicatum, 41, 121; 122, 248; var. Maidenii, 121, 122; var. molle, 121, 122; var. pilosiglume, 121
Two New Variations in Trillium, 101
Two Unusual Plants in Essex County, Massachusetts, 348
Typha latifolia, 47, 116
Typification of Euphorbia maculata L., 241

United States, Erroneous Record of Diplotaxis erucoides from Western, 291
Urtica canadensis, 295; gracilis, 145; procera, 145
Utricularia intermedia, 47, 191; macrorhiza, 191; minor, 47, 191; vulgaris, 191
Uvularia sessifolia, 295

Vaccinium angustifolium, 41, 44, 183; canadense, 183; cespitosum, 183; myrtilloides, 46, 183; Oxycoccos, 44, 184; uliginosum, 41, 51, 53, 77, 182, 295; Vitis-Idaea, 295; ssp. minus, 251, var. minus, 183
Valerianella olitoria, 160
Verbascum blattaria f. albiflora, 225; nigrum, 348
Verbena stricta, 225
Veronica americana, 189; arvensis, 225; humifusa, 189; peregrina var. xalapensis, 189; scutellata, 189; var. villosa, 189; tenella, 189
Viburnum affine var. hypomalacum, 193; edule, 193; Opulus var. americanum, 194; pauciflorum, 193; Rafinesquianum, 193; trilobum, 194
Vicia americana, 170; var. truncata, 170; Cracca, 160
Vinca minor, 225
Viola adunca, 175; var. glabra, 175, var. minor, 80, 175; cucullata, 174; f. prionosepala, 174; debilis, 13; incognita, 174, 175; pallens; 174; palustris, 46; pensylvanica, 225; var. leiocarpa, 175, 225, 275; renifolia, 46, 175; var. Brainerdii, 175; Selkirkii, 53, 174; sororia f. Beckwithae, 160; tricolor, 47, 175
Voigt, J. W., Plants Recently Found in Southern Illinois, 290

Waterfall, U. T., The Identity of Hedyotis rosea Raf., 201
Winterringer, G. S., Additional Notes on Arundinaria gigantea, 60
Woodsia × Abbeae, 81, 97; alpina, 53, 79, 96; Cathcartiana, 53, 97; glabella, 53, 79, 96; × gracilis, 96; ilvensis, 95, 96, 97; var. gracilis, 96; scopulina, 53, 80, 97
Wright, J. C. and Booth, W. E., Montana Plant Distribution Records, 236
Wyoming, Draba on Clay Butte, 229

Young, Jr.'s Flora of Maine, Further Light on Aaron, 293

Zizania aquatica var. angustifolia, 126
Zizaniopsis miliacea, 15
Zizia aptera, 178, 238

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